

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A transabdominal access system for a patient having a heart, a rib cage, a diaphragm, a sternal area, abdominal organs and an abdomen with an upper abdominal incision, comprising:

upper and lower spreader portions, said spreader portions being positioned relative to each other to open the incision and produce a substernal space for access to the heart, said upper spreader portion being configured to lift the sternal area and comprising a hook mounted to a retraction mechanism comprising a screw via a swivel connected to said screw, said lower spreader portion comprising a depressor surface adapted to engage the diaphragm and abdominal organs to depress the abdomen at the incision; and

first and second side members interconnecting said upper and lower spreader portions, wherein said first side member connects to said upper and lower spreader portions on a first side of the system at first and second end portions of said upper and lower spreader portions, and said second side member connects to said upper and lower spreader portions on a second side of the system at second end portions of said upper and lower spreader portions respectively.

2. (Withdrawn) The system of claim 1, further comprising compression surfaces, said compression surfaces positioned across the rib cage when in use for compressing the rib cage to assist in producing the substernal space.

Claims 3-10. (Canceled)

11. (Currently Amended) A transabdominal access system for a patient having an upper abdominal incision, a sternal area, a diaphragm, and abdomen and abdominal organs, said system comprising:

an upper spreader portion and a lower spreader portion, said upper spreader portion including a pair of hooks configured for lifting the sternal area of the patient at the incision, each of said pair of hooks having a free end portion independent of the other, each of said free end portions of said pair of hooks having a free end, a single actuator operable to lift both of said hooks, and said lower spreader portion comprising a depressor surface underlying said pair of hooks and adapted to engage the

diaphragm and abdominal organs to depress the abdomen at the incision, said depressor surface having a free end, said free end of said depressor surface and said free end of each of said pair of hooks extending in substantially a same direction; and

said upper and lower spreader portions being positioned relative to each other to produce a substernal space.

12. (Canceled)

13. (Previously Presented) The transabdominal access system of claim 11, wherein each of said hooks comprises a lifting surface for lifting the sternal area of the patient.

14. (Previously Presented) The transabdominal access system of claim 11, further comprising: first and second side portions, said first and second side portions being positioned and configured between said upper spreader portion and lower spreader portion to aid in producing a substernal space.

15. (Original) The transabdominal access system of claim 14, wherein said first and second side portions are integrally connected to said upper spreader portion and said lower spreader portion of said system.

16. (Withdrawn) The transabdominal access system of claim 14, where said first and second side portions are connected to said upper spreader portion; and

said side portions comprise a rib compression surface, said rib compression surface positioned across the rib cage when in use for compressing the rib cage to assist in producing the substernal space.

17. (Withdrawn) The transabdominal access system of claim 16, wherein said rib compression surfaces of said side portions each comprise at least one adjustable compression pad configured to contact the patient to apply an external force to the patient's rib cage.

18. (Withdrawn) The transabdominal access system of claim 17, wherein said upper spreader portion and said compression pads are configured to coordinate sternal lifting by said upper spreader portion and rib compression by said compression pads.

19. (Withdrawn) The transabdominal access system of claim 11, further comprising:
contact pads configured to stabilize said transabdominal through contact with the patient in locations aware from the substernal opening.

said upper spreader portion comprises a lifting portion for lifting and retracting the patients sternum.

20. (Original) The transabdominal access system of claim 11, wherein said upper spreader portion further comprises a retraction mechanism adapted to lift the rib cage at the site of the abdominal opening.

21. (Withdrawn) The access system of claim 21, wherein said retraction mechanism comprises a ratchet mechanism adapted to generate a force necessary to lift the sternum and maintain a lifted position of the sternum.

22. (Previously Presented) The transabdominal access system of claim 11, wherein said upper spreader portion further comprises a screw mechanism for lifting and retracting the sternum.

23. (Withdrawn) The transabdominal access system of claim 20, wherein said retraction mechanism comprises a piston driver.

24. (Withdrawn) The transabdominal access system of claim 20, wherein said retraction mechanism comprises a hoist.

25. (Withdrawn) The transabdominal access system of claim 20, wherein said retraction mechanism comprises a winch-type mechanism.

26. (Withdrawn) The transabdominal access system of claim 11, wherein said system is configured and mounted to a surgery table for stability of said system.

27. (Withdrawn) The transabdominal access system of claim 11, wherein said upper spreader portion further comprises a plurality of cables, said plurality of cables configured to run through the patient's chest to lift the sternal area.

28. (Withdrawn) The transabdominal access system of claim 11, wherein said lower spreader portion further comprises at least one instrument mounting element for a tool useful in surgery.

29. (Withdrawn) The transabdominal access system of claim 11, wherein said upper spreader portion comprises a lifting portion and a pair of advancement mechanisms and compression plates, said advancement mechanisms configured to adjust positions of said compression plates relative to said lifting portion.

30. (Withdrawn) The transabdominal access system of claim 29, wherein said advancement mechanisms comprise a plurality of lugs and a horizontal slider, said plurality of lugs being adjustable along said horizontal slider to optimize the placement of said compression plates relative to said lifting portion of said upper spreader portion.

Claims 31 - 43. (Canceled)

44. (Previously Presented) The system of claim 1 wherein the depressor surface comprises a tongue depressor-like structure.

45. (Previously Presented) The system of claim 11 wherein the depressor surface comprises a tongue depressor-like structure.

46. (Previously Presented) The system of claim 1, wherein said first and second side members are rigid and each has a fixed length, thereby fixing a distance between locations where each said side member connects to said upper and lower spreader portions.

47. (Previously Presented) The system of claim 1, wherein said side members and portions of said upper and lower spreader portions are integrated into a shell.

48. (Previously Presented) The system of claim 47, wherein said shell is a rigid polymeric shell.

49. (New) A transabdominal access system for a patient having a heart, a rib cage, a diaphragm,

a sternal area, abdominal organs and an abdomen with an upper abdominal incision, said system comprising:

- a rigid shell having an upper portion and a lower portion and two side portions connecting to said upper and lower portions to define a confined space through which a substernal cavity can be accessed;
- a lower spreader portion fixed relative to said lower portion; and
- an upper spreader portion connected to said upper portion and positioned relative to said lower spreader portion to open the upper abdominal incision and produce the substernal space for access to the heart.

50. (New) The system of claim 49, wherein said upper spreader portion is configured to lift the sternal area and comprises a hook mounted to a retraction mechanism.

51. (New) The system of claim 49, wherein said lower spreader portion comprising a depressor surface adapted to engage the diaphragm and abdominal organs to depress the abdomen at the incision.

52. (New) The system of claim 49, wherein said depressor is integrally molded with said lower portion.